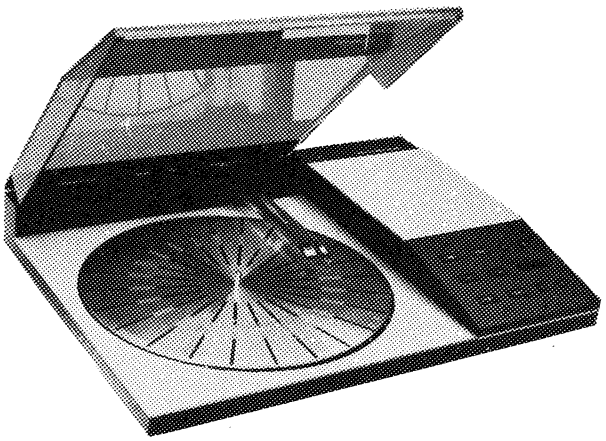
Bang&Olufsen



Beogram 6002
type 5641/42/43/45/46/47

Beogram TX
type 5651/52/53/55

SERVICE MANUAL

Bang&Olufsen

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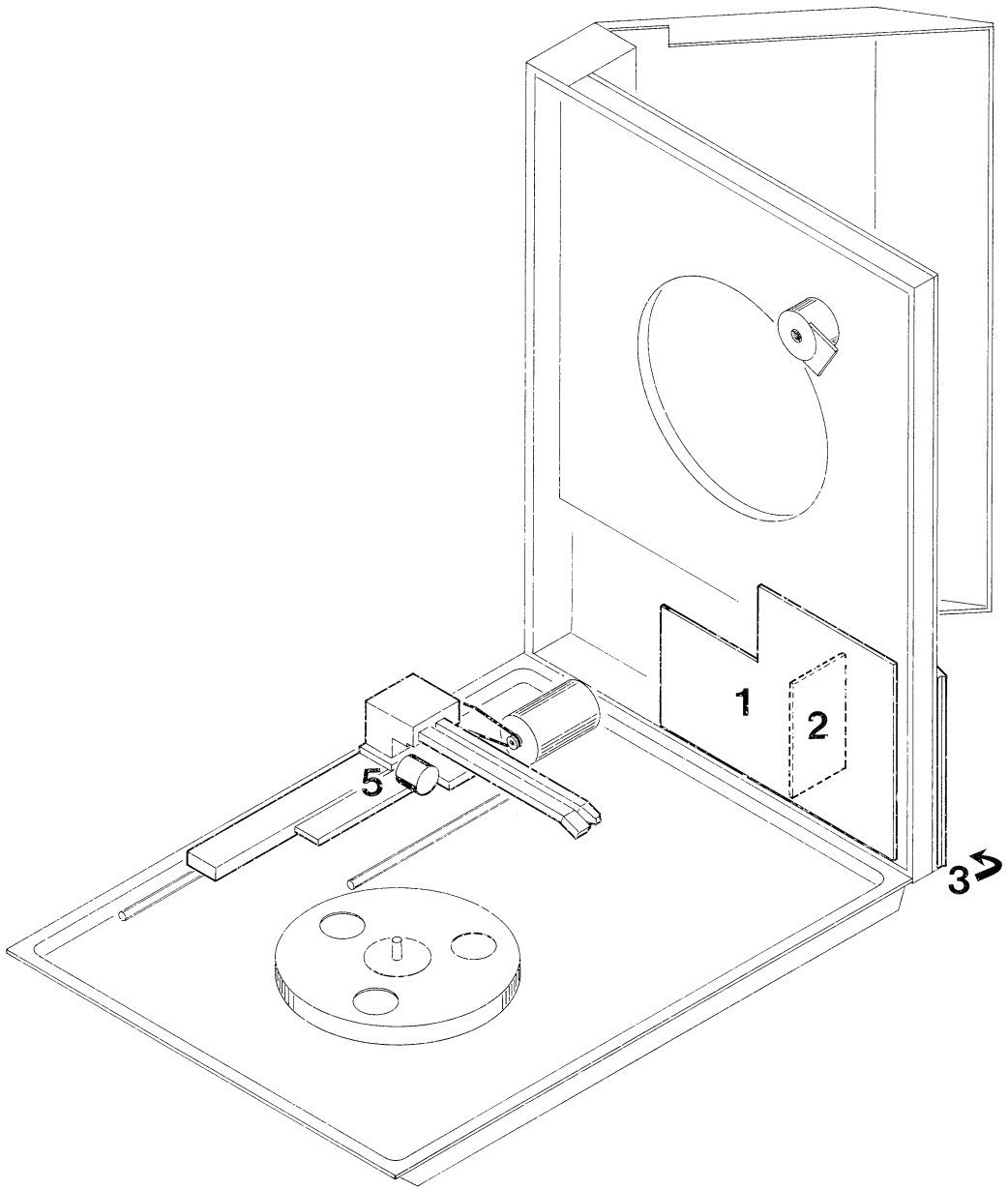
5. Sliding Chassis



DIAGRAMFORKLARING

På diagrammet er der angivet typenumre på transistorer og IC'er i de tilfælde, hvor typenummeret er entydigt for komponentens placering i kredsløbet – f.eks. TR20/BC 557B.

Hvis positionsnummeret er efterfulgt af en stjerne **skal** reservedelsnummeret benyttes, da denne komponent er specielt udvalgt – f.eks. TR102*.

Koordinatsystem

De største printplader er forsynet med et koordinatsystem. Komponenterne på disse printplader er på diagrammet forsynet med en koordinatbetegnelse, som fortæller i hvilket felt på printpladen de er placeret (mindre skrifttype end positionsnummeret – f.eks. B3).

Målebetingelser

Alle DC spændinger er positive i forhold til stel. Spændingerne er målt med plade på pladetallerkenen automatisk sænket pick-up arm og 33 omdr.
De angivne impulser i detektorarmskredsløbet er målt med roterende pladetallerken og med detektorarmen inde over ribberne uden plade.

EXPLANATION OF DIAGRAM

Type numbers of transistors and IC's have been indicated on the diagram in those cases where the type number is unambiguous for the position of the component in a circuitry – e.g. TR20/BC 557B.

If the position number is followed by an asterisk the spare part number **must be used** because this component has been expecially selected – e.g. TR102*.

Co-ordinate System

The largest PC-boards have been provided with a co-ordinate system. The components on these PC-boards are provided with a grid reference on the diagram indicating in what grid they are positioned on the PC-board (smaller typing than position numbers – e.g. B3).

Conditions of Measurement

All DC voltages are positive in relation to chassis. The voltages are measured with record on turntable, automatically lowered pick-up arm, and 33 r.p.m.
The indicated impulses in the detectorarm circuit are measured with rotating turntable and with the detectorarm placed above the webs without record.

ERLÄUTERUNGEN ZUM SCHALTBILD

Auf dem Schaltbild sind Typen-Nummern für Transistoren und IC's in den Fällen angegeben, in denen die Typen-Nummer für die Placierung der Komponente in einem Schaltkreis eindeutig ist – z.B. TR20/BC 557B.

Wenn auf die Positionsnummer ein Stern folgt, **ist** die Ersatzteilnummer **zu benutzen**, da diees Komponente speziell ausgewählt werden ist – z.B. TR102*.

Koordinatensystem

Die grössten Printplatten sind mit einem Koordinatensystem versehen. Die Komponenten auf diesen Printplatten sind auf dem Schaltbild mit einer Koordinatennummer versehen, die erhält, in welcher Koordinate der Printplatte sie angebracht sind (kleinere Schrifttype als die der Positionsnummer – z.B. B3).

Meßbedingungen

Alle DC Spannungen sind positive im Verhältnis zur Masse. Die Spannungen sind mit Platte auf dem Plattenteller gelegt, mit automatisch gesenktem Tonarm und bei 33 Umdrehungen gemessen.
Die im Detektorarmkreislauf angegebenen Impulse sind mit rotierendem Plattenteller und mit dem Detektorarm über den Rippen ohne Platte gemessen.

NOTICE EXPLICATIVE DES SCHEMAS

Sur les schémas, les numéros de types sont indiqués pour les transistors et lés circuits intégiés dans les cas où le numéro de type est univoque pour la disposition du composant dans un circuit – par example TR20/BC557B.

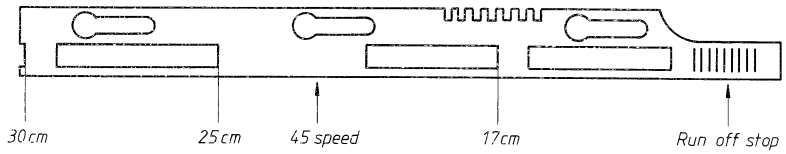
Si le numéro de position est suivi par un astérisque, il **faut** utiliser le numéro de la piece de rechange, étant donné qu'il agit dès lors d'un composant spécialement sélectionné – par example TR102*.

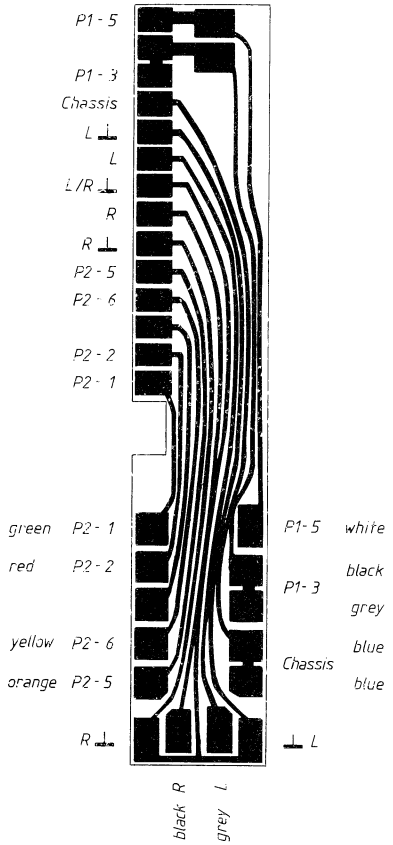
Système de coordonnées

Les plus grands circuits imprimés sont munis d'un système de coordonnées. Les composants de ces circuits imprimés portent un numéro de coordonnée sur le schéma qui indiquent dans quelle coordonnées ils sont placés sur le circuit imprimé (en caractères plus petit que ceux qui indiquent le numéro de position – par example B3).

Conditions de mesure

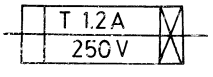
Toutes les DC tensions sont positives par rapport au chassis. Les tensions sont mesurés avec disque sur le plateau, bras de pick-up baissé automatiquement et 33 rotations.
Les impulsions indiquées dans le circuit du bras détecteur sont mesurées avec plateau rotatoire et bras détecteur au-dessus des nervures sans disque.





Explanation of the fuse symbols used in the set:

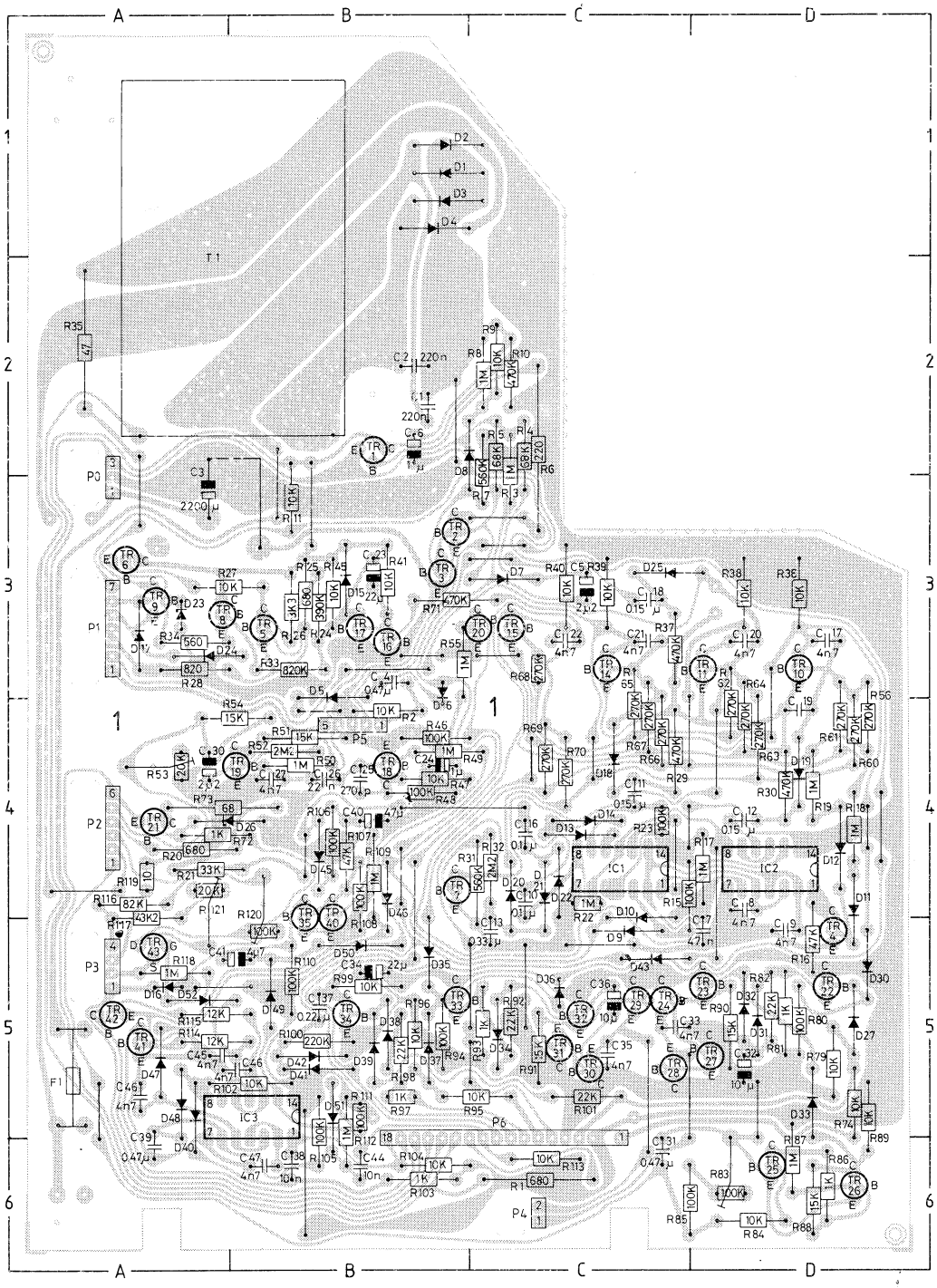
Explanation des symboles du fusible utilisés dans l'appareil:



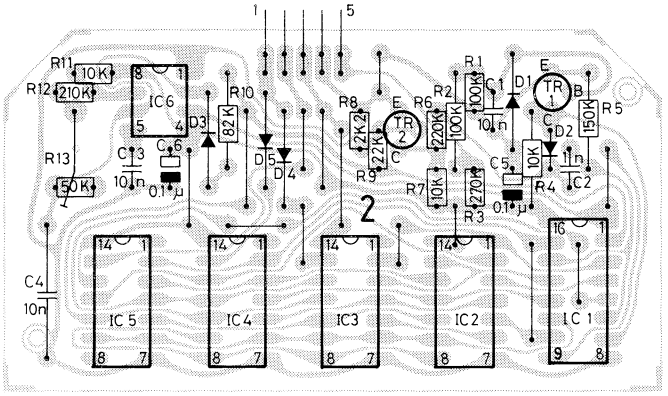
Replace with same type 1.2 amperes 250 volts slow acting fuse.

Remplacer par un fusible de meme type retardé et de 1.2 amperes 250 volts.

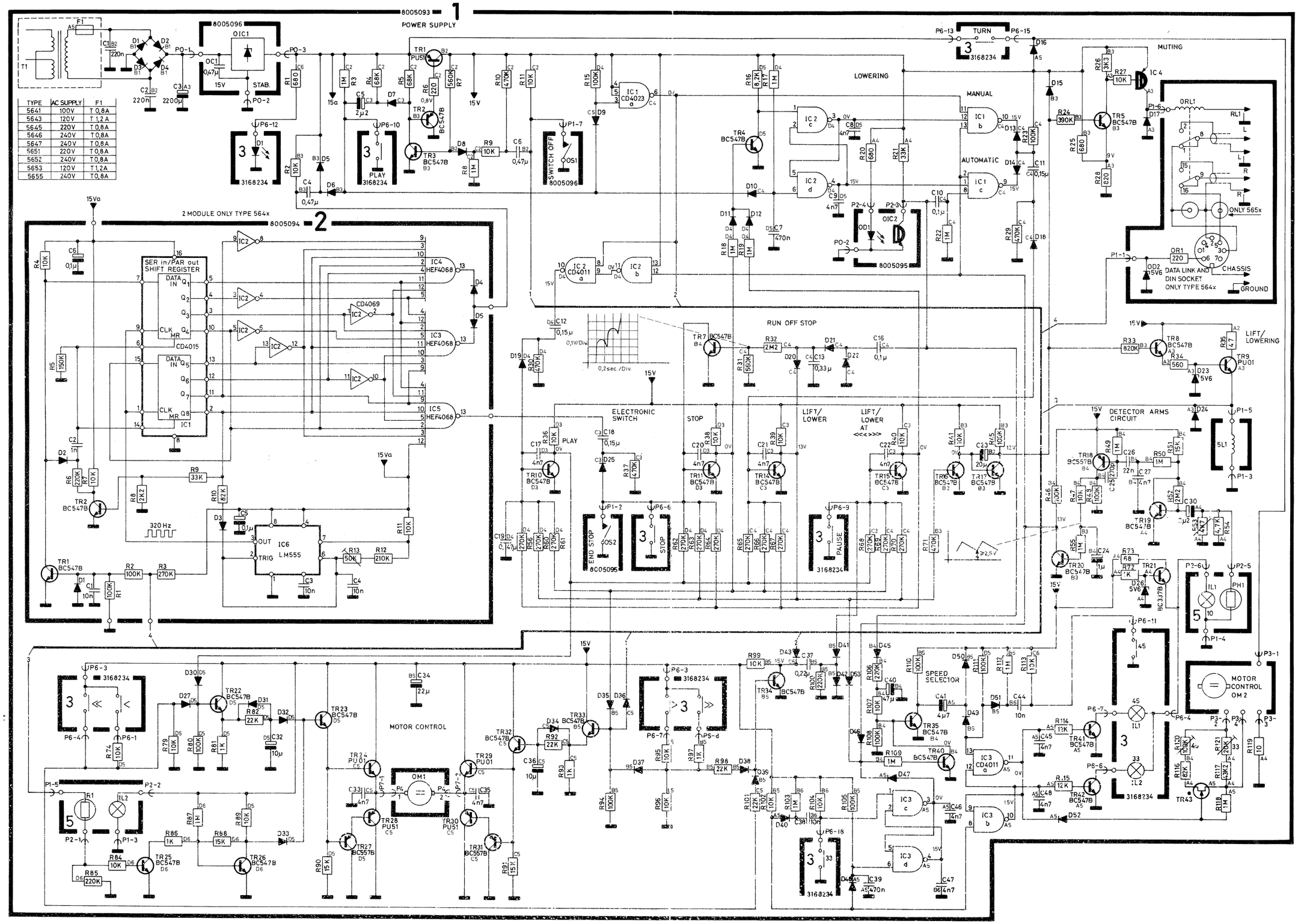
PCB1, Control Circuits and Power Supply



PCB2, Data Link

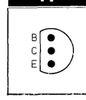
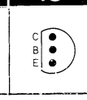
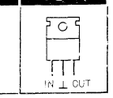


PC-Boards are seen from copperfoil-side


8005093 1
POWER SUPPLY
F1
T1
C1 220n
C2 220n
C3 2200µ
D1 D2 D3 D4
PO-1
8005096
OIC1
OC1 0,47µ
15V
STAB.
PO-2
PO-3
R1 680
TYPE | AC SUPPLY | F1
5641 100V T 0,8A
5643 120V T 1,2 A
5645 220V T 0,8A
5646 240V T 0,8A
5647 240V T 0,8A
5651 220V T 0,8A
5652 240V T 0,8A
5653 120V T 1,2A
5655 240V T 0,8A
P6-12
D1
3168234
R2 10K
C4 0,47µ
D5 D6
P6-10
PLAY
3168234
TR1 PU51
TR2 BC547B
TR3 BC547B
R3 1M
R4 68K
R5 68K
R6 220
0,8V
R7 560K
R8 1M
D8
R9 10K
C6 0,47µ
R10 470K
R11 10K
15V
15Va
C5 2µ2
D7
P1-7
SWITCH OFF
OS1
8005096
R15 100K
IC 1 CD4023 a
C5 D9
0V
R16 8,2K
R17 1M
TR4 BC547B
LOWERING
IC 2 c
IC 2 d
4n7
R20 680
R21 33K
MANUAL
AUTOMATIC
IC1 b
IC1 c
C10 0,1µ
C11 0,15µ
R22 1M
R29 470K
D10
D11 D12
R18 1M
R19 1M
C7 470n
IC 2 CD4011 a
IC 2 b
OD1
OIC2
P2-4
P2-3
8005095
P6-13 TURN P6-15
3168234
D16
D15
MUTING
R26 3K3
R27 10K
IC 4
R24 390K
TR5 BC547B
R25 680
R28 820
9V
ORL1
RL1
L
R
ONLY 565x
P1-6
D17
P1-1
OR1 220
OD2 15V6
DATA LINK AND DIN SOCKET ONLY TYPE 564x
CHASSIS
GROUND
2 MODULE ONLY TYPE 564x
8005094 2
15Va
R4 10K
C6 0,1µ
SER in/PAR out SHIFT REGISTER
DATA IN
CLK
MR
CD4015
IC1
R5 150K
C2
D2
R6 220K
R7 10K
TR2 BC547B
R8 2K2
R9 33K
R10 82K
320 Hz
C5 0,1µ
IC6 LM555
OUT
TRIG
R13 50K
R12 210K
C3 10n
C4 10n
TR1 BC547B
R2 100K
R3 270K
D1
C1 10n
R1 100K
IC2
IC4 HEF4068
IC3 HEF4068
IC5 HEF4066
CD4069
D4
D5
C12 0,15µ
0,1V/Div.
0,2sec./Div.
D19
R30 470K
RUN OFF STOP
TR7 BC547B
R32 2M2
R31 560K
D21
D20
C13 0,33µ
D22
C16 0,1µ
ELECTRONIC SWITCH
STOP
LIFT/ LOWER
LIFT/ LOWER AT
PLAY
R36 10K
C17 4n7
TR10 BC547B
C18 0,15µ
D25
R37 470K
C19 0,47µ
R56 270K
R60 270K
R61 270K
P1-2
END STOP
OS2
8005095
P6-6
STOP
R62 270K
R63 270K
R64 270K
R38 10K
C20 4n7
TR11 BC547B
R65 270K
R66 270K
R67 270K
R39 10K
C21 4n7
TR14 BC547B
P6-9
PAUSE
3168234
R40 10K
C22 4n7
TR15 BC547B
R68 270K
R69 270K
R70 270K
R41 10K
C23 20µ
TR16 BC547B
TR17 BC547B
R45 100K
R71 470K
≥2,5V
15V DETECTOR ARMS CIRCUIT
TR18 BC557B
R49 1M
C25 270p
C26 22n
R50 1M
R51 15K
C27 4n7
R46 100K
R47 10K
R48 100K
TR19 BC547B
R52 2M2
C30 0,1µ
R53 4K7
R54 4,7K
TR20 BC547B
R55 1M
C24 1µ
R73 68
R72 1K
TR21 BC337B
D26 5V6
P2-6
P2-5
IL1
PH1
P1-4
P1-5
5L1
P1-3
P6-11
P3-1
MOTOR CONTROL OM 2
P6-7
P6-4
P6-5
IL1
IL2
3168234
P3-2
P3-4
P3-3
R120 33K
R121 10K
R119 10
R116 82K
R117 33K
R118 1M
TR43
R114 12K
TR41 BC547B
C45 4n7
R115 12K
TR42 BC547B
C48 4n7
D52
LIFT/ LOWERING
R33 820K
TR8 BC547B
R35 47
R34 560
TR9 PU01
D23 15V6
D24
C46 4n7
C47 4n7
IC3 a
IC3 b
IC3 c
IC3 d
C39 470n
C38 10n
D40
D47
D48
P6-18
3168234
R99 10K
C37 0,22µ
TR34 BC547B
R100 220K
D41 D42 D53
D43
R106 270K
C40 47µ
R107 10K
R108 100K
R109 1M
TR40 BC547B
R110 100K
SPEED SELECTOR
C41 4µ7
TR35 BC547B
D50
R111 100K
R112 1M
R113 15K
D51
C44 10n
D49
D46
P6-3
3168234
P6-7
P6-8
TR32 BC547B
TR33 BC547B
D34
D35 D36
R92 22K
C36 10µ
R93 1K
R94 100K
R95 10K
R96 10K
R97 1K
R98 22K
D37 D38 D39
R101 22K
R102 10K
R103 1M
R104 10K
R105 100K
D30
D27
TR22 BC547B
D31
R82 22K
D32
C32 10µ
TR23 BC547B
R79 10K
R80 100K
R81 1K
R74 10K
P6-4
P6-1
C34 22µ
MOTOR CONTROL
TR24 PU01
TR28 PU51
TR29 PU01
TR30 PU51
TR27 BC557B
TR31 BC557B
OM1
P7-1
P7-2
C33 4n7
C35 4n7
R90 15K
R91 15K
P1-5
P2-2
P2-1
P1-3
IL2
R1
5
R84 10K
R85 220K
R86 1K
R87 1M
R88 15K
R89 10K
D33
TR25 BC547B
TR26 BC547B

SEMI-CONDUCTORS

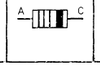
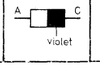
Transistors and IC's

17	19	20	24	101	102	103	105
							

0IC1	8340064	**105**	LM 340T-15
		105	µA 7815
		105	µA 7815 UC
0IC2	8340084	**17**	SRD 12B
1TR1	8320423	**19**	92 PU 51
1TR2	8320152	**20**	BC 557B
1TR3-TR5	8320097	**20**	BC 547B
1TR7-TR8	8320097	**20**	BC 547B
1TR9	8320422	**19**	92 PU01
1TR10-TR17	8320097	**20**	BC 547B
1TR18	8320152	**20**	BC 557B
1TR19-TR20	8320097	**20**	BC 547B
1TR21	8320295	**20**	BC 337-25/18
1TR22-TR23	8320097	**20**	BC 547B
1TR24	8320422	**20**	92 PU 01
1TR25-TR26	8320097	**20**	BC 547B
1TR27	8320152	**20**	BC 557B
1TR28	8320423	**19**	92 PU51
1TR29	8320422	**19**	92 PU01
1TR30	8320423	**19**	92 PU51
1TR31	8320152	**20**	BC 557B
1TR32-42	8320097	**20**	BC 547B
1TR43	8320396	**24**	MPF 4392
		24	2N 5630
		24	2N 4392
1IC1Δ	8340182	**102**	CD 4023 BCN
		102	MC 14023
			BCP
		102	HEF 4023 BP
1IC2-IC3Δ	8340109	**102**	MC 14011B
		102	CD 4011CN
		102	CD 4011
		102	MC 14011CP
1IC4	8340025	**19**	SPS 5431
		19	MPS A65
		20	BC 516
2TR1-TR2	8320097	**20**	BC 547B
2IC1Δ	8340175	**101**	CD 4015CN
		101	MC 4015BCP
		101	HEF 4015BP
2IC2Δ	8340173	**102**	CD 4069CN
		102	HEF 4069
			UBP
		102	MC 14069
			UBCP
2IC3-IC5	8340471	**102**	HEF 4068BP
		102	14068BCP
2IC6	8340144	**103**	555

Δ betyder at statisk elektricitet kan ødelægge komponenten.
Δ indicates that static electricity may destroy the component.
Δ bedeutet, daß statische Elektrizität die Komponente zerstören kann.

Diodes

209	215	217					
		 violet					

0D1	8330018		SEP 8506
0D2	8300128	**209**	ZPD 5V6 5%
		209	BZX 79C5V6
		209	BZX 83C5V6
1D1-D4	8300102	**209**	1N 4004
1D5-D15	8300058	**209**	1N 4148
		217	SFD 184
		215	1N 4148
1D16	8300102	**209**	1N 4004
1D17-D22	8300058	**209**	1N 4148
		217	SFD 184
		215	1N 4148
1D23	8300128	**209**	ZPD 5.6
		209	BZX 79C5V6
		209	BZX 83C5V6
1D24	8300058	**209**	1N 4148
1D25		**217**	SFD 184
		215	1N 4148
1D26	8300128	**209**	ZPD 5.6
		209	BZX 79C5V6
		209	BZX 83C5V6
1D27-D53	8300058	**209**	1N 4148
		217	SFD 184
		215	1N 4148
2D1-D5	8300058	**209**	1N 4148
		217	SFD 184
		215	1N 4148

LIST OF ELECTRICAL PARTS

Control Circuits and Power Supply 8005093, PCB1

0R1	5010092	220 Ω ±5% 1/4W
0C1	4130228	0.47µF ±20% 63V
0RL1	7600059	Relay 12V
0S1	7400268	Switch »OFF«
0S2	7400268	Switch »END STOP«
	2816201	Bronze spring/lever

R1	5001026	680 Ω ±10% 1/2W
R2	5010059	10 kΩ ±5% 1/4W
R3	5010054	1 MΩ ±5% 1/4W
R4	5010062	68 kΩ ±5% 1/4W
R5	5010062	68 kΩ ±5% 1/4W
R6	5020465	220 Ω ±5% 3W
R7	5010071	560 kΩ ±5% 1/4W
R8	5010054	1 MΩ ±5% 1/4W
R9	5010059	10 kΩ ±5% 1/4W
R10	5010077	470 kΩ ±5% 1/4W
R11	5010059	10 kΩ ±5% 1/4W
R15	5010049	100 kΩ ±5% 1/4W
R16	5010154	8.2 kΩ ±5% 1/4W
R17	5010054	1 MΩ ±5% 1/4W
R18	5010054	1 MΩ ±5% 1/4W
R19	5010054	1 MΩ ±5% 1/4W
R20	5001026	680 Ω ±10% 1/2W
R21	5010075	33 kΩ ±5% 1/4W
R22	5010054	1 MΩ ±5% 1/4W
R23	5010049	100 kΩ ±5% 1/4W
R24	5010073	390 kΩ ±5% 1/4W
R25	5010144	680 Ω ±5% 1/4W
R26	5010076	3.3 kΩ ±5% 1/4W
R27	5010059	10 kΩ ±5% 1/4W
R28	5010068	820 Ω ±5% 1/4W
R29	5010077	470 kΩ ±5% 1/4W
R30	5010077	470 kΩ ±5% 1/4W
R31	5010071	560 kΩ ±5% 1/4W
R32	5010245	2.2 MΩ ±10% 1/4W
R33	5010505	820 kΩ ±5% 1/4W
R34	5010067	560 Ω ±5% 1/4W
R35	5020549	47 Ω ±5% 1/4W
R36	5010059	10 kΩ ±5% 1/4W
R37	5010077	470 kΩ ±5% 1/4W
R38	5010059	10 kΩ ±5% 1/4W
R39	5010059	10 kΩ ±5% 1/4W
R40	5010059	10 kΩ ±5% 1/4W
R41	5010059	10 kΩ ±5% 1/4W
R45	5010049	100 kΩ ±5% 1/4W
R46	5010049	100 kΩ ±5% 1/4W
R47	5010059	10 kΩ ±5% 1/4W
R48	5010049	100 kΩ ±5% 1/4W
R49	5010054	1 MΩ ±5% 1/4W
R50	5010054	1 MΩ ±5% 1/4W
R51	5010053	15 kΩ ±5% 1/4W
R52	5010245	2.2 MΩ ±10% 1/4W
R53	5370076	4.7 kΩ ±20%
R54	5010053	15 kΩ ±5% 1/4W
R55	5010054	1 MΩ ±5% 1/4W
R56	5010083	270 kΩ ±5% 1/4W
R60	5010083	270 kΩ ±5% 1/4W
R61	5010083	270 kΩ ±5% 1/4W
R62	5010083	270 kΩ ±5% 1/4W
R63	5010083	270 kΩ ±5% 1/4W
R64	5010083	270 kΩ ±5% 1/4W
R65	5010083	270 kΩ ±5% 1/4W
R66	5010083	270 kΩ ±5% 1/4W
R67	5010083	270 kΩ ±5% 1/4W
R68	5010083	270 kΩ ±5% 1/4W
R69	5010083	270 kΩ ±5% 1/4W
R70	5010083	270 kΩ ±5% 1/4W
R71	5010077	470 kΩ ±5% 1/4W
R72	5010040	1 kΩ ±5% 1/4W
R73	5020547	68 Ω ±5% 2W
R74	5010059	10 kΩ ±5% 1/4W
R79	5010059	10 kΩ ±5% 1/4W
R80	5010049	100 kΩ ±5% 1/4W
R81	5010040	1 kΩ ±5% 1/4W
R82	5010079	22 kΩ ±5% 1/4W
R84	5010059	10 kΩ ±5% 1/4W
R85	5010120	220 kΩ ±5% 1/4W
R86	5010040	1 kΩ ±5% 1/4W
R87	5010054	1 MΩ ±5% 1/4W
R88	5010053	15 kΩ ±5% 1/4W
R89	5010059	10 kΩ ±5% 1/4W
R90	5010053	15 kΩ ±5% 1/4W
R91	5010053	15 kΩ ±5% 1/4W
R92	5010079	22 kΩ ±5% 1/4W
R93	5010040	1 kΩ ±5% 1/4W
R94	5010049	100 kΩ ±5% 1/4W
R95	5010059	10 kΩ ±5% 1/4W
R96	5010059	10 kΩ ±5% 1/4W
R97	5010040	1 kΩ ±5% 1/4W
R98	5010079	22 kΩ ±5% 1/4W
R99	5010059	10 kΩ ±5% 1/4W
R100	5010120	220 kΩ ±5% 1/4W
R101	5010079	22 kΩ ±5% 1/4W
R102	5010059	10 kΩ ±5% 1/4W
R103	5010054	1 MΩ ±5% 1/4W
R104	5010059	10 kΩ ±5% 1/4W
R105	5010049	100 kΩ ±5% 1/4W
R106	5010120	220 kΩ ±5% 1/4W
R107	5010059	10 kΩ ±5% 1/4W
R108	5010049	100 kΩ ±5% 1/4W
R109	5010054	1 MΩ ±5% 1/4W
R110	5010049	100 kΩ ±5% 1/4W
R111	5010049	100 kΩ ±5% 1/4W
R112	5010054	1 MΩ ±5% 1/4W
R113	5010059	10 kΩ ±5% 1/4W
R114	5010046	12 kΩ ±5% 1/4W
R115	5010046	12 kΩ ±5% 1/4W
R116	5010091	82 kΩ ±5% 1/4W
R117	5020132	43,2 kΩ ±1% 1/4W
R118	5010054	1 MΩ ±5% 1/4W
R119	5104009	10 Ω ±10% 3W
R120	5370128	100 kΩ ±20%
R121	5370068	22 kΩ ±20%

C1	4130233	220 nF ±20% 63V
C2	4130233	220 nF ±20% 63V
C3	4200393	2200 µF 40V
C4	4130234	470 nF ±10% 63V
C5	4200517	2.2 µF 50V
C6	4130228	0.47 µF ±20% 63V
C7	4200523	0.47 µF 50V
C8	4010101	4.7 nF ±10% 63V
C9	4010101	4.7 nF ±10% 63V
C10	4130230	100 nF ±20% 63V
C11	4130232	150 nF ±20% 63V
C12	4130232	150 nF ±20% 63V
C13	4130236	330 nF ±20% 63V
C16	4130230	100 nF ±20% 63V
C17	4010101	4.7 nF ±10% 63V
C18	4130232	150 nF ±20% 63V
C19	4130234	470 nF ±20% 63V
C20	4010101	4.7 nF ±10% 63V
C21	4010101	4.7 nF ±10% 63V
C22	4010101	4.7 nF ±10% 63V
C23	4200488	22 µF 25V
C24	4200512	1 µF 50V
C25	4010110	270 pF ±10% 100V
C26	4010107	22 nF -20+100% 40V
C27	4010063	4.7 nF ±10% 63V
C30	4200517	2.2 µF 50V
C31	4130234	470 nF ±10% 63V
C32	4200524	10 µF 25V
C33	4010101	4.7 nF ±10% 63V
C34	4200508	22 µF 25V
C35	4010101	4.7 nF ±10% 63V
C36	4200524	10 µF 25V

C37	4130233	220 nF ±20% 63V	C44	4010106	10 nF -20+80% 40V
C38	4010106	10 nF -20+80% 40V	C45	4010101	4.7 nF ±10% 63V
C39	4130234	470 nF ±10% 63V	C46	4010101	4.7 nF ±10% 63V
C40	4200516	47 µF 16V	C47	4010101	4.7 nF ±10% 63V
C41	4200515	4.7 µF 25V	C48	4010101	4.7 nF ±10% 63V

P0	7220166	Plug 3/3 pins	P3	7220201	Plug 4/4 pins
P1	7220247	Plug 7/7 pins	P4	7220176	Plug 2/2 pins
P2	7220167	Plug 6/6 pins	P6	7210397	Socket 18/17 pins

T1	8013276	Mains transformer 5641	F1	6600011	800 mA-slow 5641/45/46/47/5651/52/55
	8013277	Mains transformer 5643/53		6600051	1.2 A slow 5643/53
	8013278	Mains transformer 5645/51			
	8013279	Mains transformer 5646/47/52/55			

Data Link 8005094, PCB2

R1	5010049	100 kΩ ±5% 1/4W	R8	5010064	2.2 Ω ±5% 1/4W
R2	5010049	100 kΩ ±5% 1/4W	R9	5010075	33 kΩ ±5% 1/4W
R3	5010083	270 kΩ ±5% 1/4W	R10	5010091	82 kΩ ±5% 1/4W
R4	5010059	10 kΩ ±5% 1/4W	R11	5010059	10 kΩ ±5% 1/4W
R5	5010063	150 kΩ ±5% 1/4W	R12	5020484	210 kΩ ±1% 1/4W
R6	5010120	220 kΩ ±5% 1/4W	R13	5370061	47 kΩ ±20%
R7	5010059	10 kΩ ±5% 1/4W			

C1	4010041	10 µF -20+80% 40V	C4	4100034	10 nF ±2% 63V
C2	4010027	1 µF ±10% 100V	C5	4200474	0.1 µF 50V
C3	4010041	10 nF -20+80% 40V	C6	4200474	0.1 µF 50V

P5	7220307	Plug 5/5 pins

Operating Panel 3168234, PCB3

IL1	8230069	5V/60 mA
IL2	8230069	5 V/60 mA

P6	6200049	Flat cable 10
	6200050	Flat cable 7

Sliding Chassis 8055027, Module 5

R1	5210009	Photo resistor	IL1	8230069	5V/600 mA
PH1	8760002	Photo element	IL2	8230068	18V/30 mA

L1	6810008	Coil

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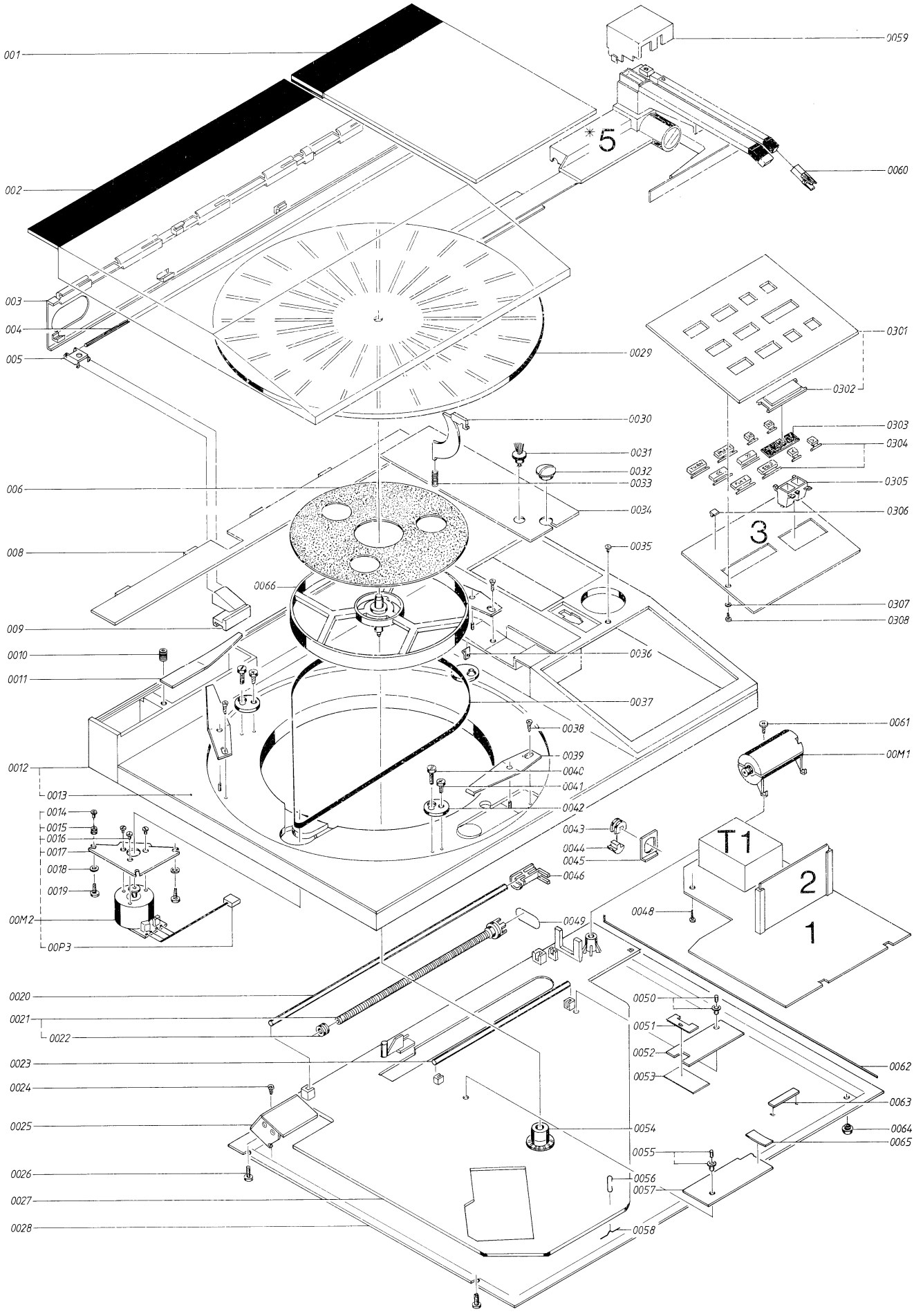


LIST OF MECHANICAL PARTS

* 001	3164425	Lid
* 002	3164516	Dust cover
003	3030067	Back part
004	2831043	Shaft
005	2542527	Hinge
006	2622264	Cover washer
008	3162131	Cover
009	3030048	Bracket
0010	2072102	Threaded pin M4 x 12
0011	2816168	Leaf spring
* 0012	3414001	Cabinet, teak
	3414003	Cabinet, rosewood
	3414004	Cabinet, oak
	3414005	Cabinet, white
0013	3458274	Alu cover
0014	2365095	Bushing
0015	2938137	Rubber bushing
0016	2036915	Screw AM2.6 x 3 black
0017	3152214	Holder
0018	2622348	Washer 2.3
0019	2011005	Screw 2.2 x 9.5
0020	2830092	Shaft 50 Hz
	2830099	Shaft 60 Hz
0021	2993034	Spindle
0022	2389057	Threaded bushing
0023	2830093	Shaft
0024	2039027	Screw AM3 x 6 black
* 0025	8005044	PCB Muting
	3302348	Screen f/0RL1
0026	2039027	Screw AM3 x 6 black
0027	3114199	Floating chassis
0028	3454264	Bottom
0029	2726146	Platter
0030	3011012	Friction arm
0031	3627013	Cleansing brush
0032	2775659	Button
0033	2810096	Spring
0034	3458252	Cover
0035	3010007	Stop
0036	2640040	Locking plate
0037	2732061	Belt
0038	2039029	Screw AM3 x 16 black
0039	2816184	Leaf spring
0040	2042216	Screw AM4 x 16
0041	2013202	Screw 2.9 x 9.5 black
0042	2641097	Clamp
0043	2641061	Bushing f/mains connector
0044	2641062	Locking plate f/mains connector
0045	2530446	Bracket
0046	3152293	Holder
0048	2013095	Screw 2.9 x 9.5 black
0049	2732045	Belt
0050	2364034	Locking plate
0051	2816136	Bronze spring
0052	8005096	PCB – 0IC1
	7220134	Plug 2 pol
0053	3170169	Mica sheet
0054	2938211	Bearing
0055	2364034	Locking plate
0056	2514028	Hook
0057	8005095	PCB 0D1/IC2
0058	2894045	Spring
0059	3164481	Cover
0060	8954850	MMC3 (replacement)
0061	2013080	Screw 2.9 x 9.5 black
0062	2830084	Shaft
0063	3152101	Holder
0064	3103067	Rubber foot
0065	2816179	Bronze spring
0066	2862038	Fly wheel

00M1	8400117	Servo motor
00M2	8400118	Drive motor
00P3	6274071	Bundle of wires w/socket
	3152380	Holder f/wire

01Modul	8005093	PCB without mains transformer and F1
	3152254	Holder f/PCB2
* 01T1	8013278	Mains transformer (220V)

02Modul	8005094	PCB – Data link

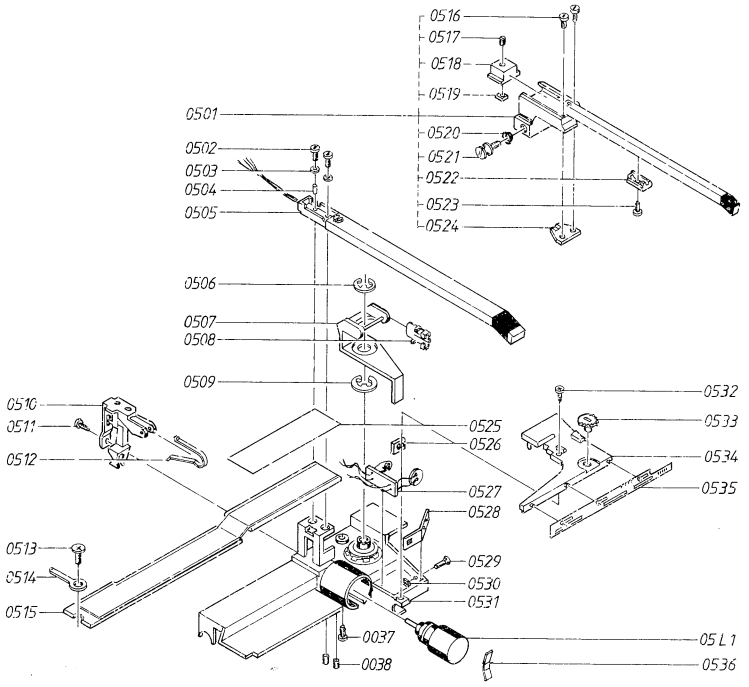
03Modul	3168234	Operating panel
0301	3168168	Panel
0302	3370123	Window
0303	3370143	Film »33/45«
0304	2775953	Set of knobs
0305	3152377	Housing
0306	7500148	Contact spring
0307	2622065	Fibre washer 2.2
0308	2011305	Screw 2.2 x 3.2

05Modul	8055027	Sliding chassis

* 001	3164517	Lid black 565x
* 002	3164518	Dust cover 565x
* 0012	3414056	Cabinet black 565x
* 0025	8005122	PCB Muting 565x
* 01T1	8013276	Mains transformer 5641 (100V)
	8013277	Mains transformer 5643/53 (120V)
	8013279	Mains transformer 5646/47/55 (240V)

Bang&Olufsen

Sliding Chassis 8055027



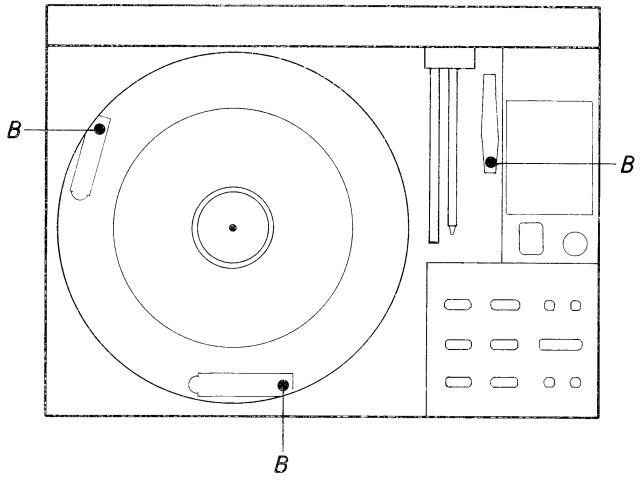
0501	3152378	Arm complete	0520	2812089	Spring
0502	2038247	Screw AM3 x 6	0521	2038077	Adjustment screw
0503	2622041	Washer	0522	3190085	Sliding indicator
0504	6430067	Silicon insulation	0523	2034236	Screw AM2 x 3
0505	2850120	Detector arm	0524	2641090	Clamp
0506	2390033	E-ring 5	0525	3302319	Cover
0507	3150050	Bearing holder	0526	3375032	Magnifier
0508	2816157	Spring	0527	8005054	PCB 5R1/IL2
0509	2390079	Spring washer 6	0528	2816164	Aperture
0510	2530396	Bracket	0529	2034014	Screw AM2 x 8
0511	2034236	Screw AM2 x 3	0530	2380068	Square nut M2
0512	2816185	Spring	0531	3114172	Slide
0513	2043024	Screw M4 x 6	0532	2011004	Screw 2.2 x 4.5 black
0514	7520091	Solder tag	0533	2625029	Adjustment washer
0515	8005043	PCB flexible w/bracket	0534	3152370	Cover
0516	2034211	Screw AM2 x 6	0535	3199063	Dial
0517	2072703	Threaded pin M3 x 6	0536	2816165	Bronze spring
0518	3342039	Counter weight	0537	2038084	Screw AM3 x 8
0519	2380054	Square nut M3	0538	6430067	Silicon insulation

05L1	6810008	Coil

Parts Not Shown

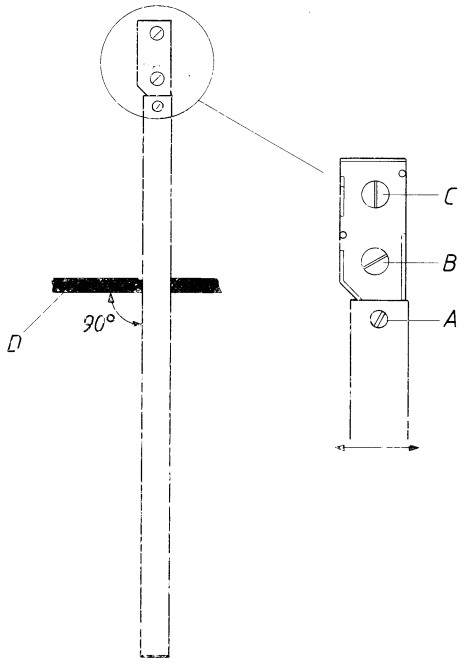
3015085	Record adaptor	6271101	Mains connector 5645/51
6270213	Connector 7 pol DIN/564x	6271115	Mains connector 5646
6270204	Connector 5 pol DIN/564x	6271091	Mains connector 5647/55
6270260	Connector RCA, 565x	3535078	Diagram
6270261	Chassis connector 565x	3391538	Outer carton
6274093	Bundle of wires 2-3/P0-P4	3397428	Foam packing set
6274091	Bundle of wires 7/P1	3390114	Plastic bag for cover
6274092	Bundle of wires 6/P2	3917041	Foam block
6271119	Mains connector 5641	3917062	Foam insert
6100012	Mains connector 5643/53		

ADJUSTMENTS
Drive Unit Height



Adjust the screws B – while putting the turntable on and taking it off again – until the top edge of the turntable is 2.9 ±0.2 mm higher than the cover plate.

Tightening of the Detector Arm

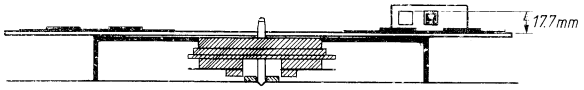


Loosen the screws B and C.

Tighten the screw B very gently.

Turn the detector arm until it is at right angles to the rod D.

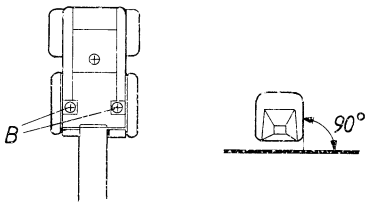
Tighten the screws B and C.



After tightening, check that the height between the upperside of the detetor arm down to the turntable is 17.7 mm.

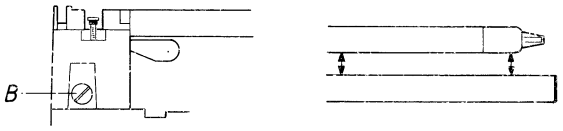
Adjustment is done with the screw A.

Pick-up Parallelism



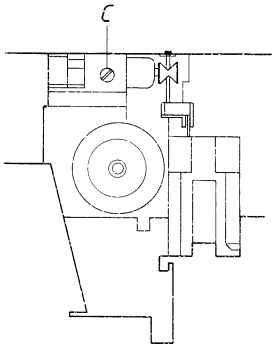
Adjust the screws B – by loosening and tightening respectively – until the side of the pick-up is at right angles to the turntable.

Vertical Parallelism of the Pick-up Arm



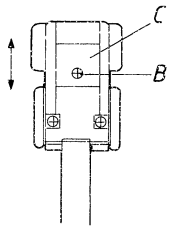
Adjust the screw B gently until the pick-up arm vertically parallels the detector arm.

Horizontal Parallelism of the Pick-up Arm



Adjust the screw C (to be found under the bottom of the carrier unit) until the pick-up arm horizontally parallels the detector arm.

Pick-up Arm Balancing



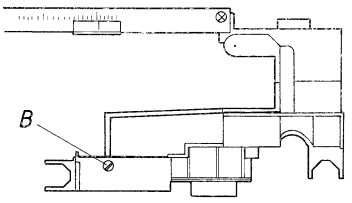
Set stylus pressure at 0.

Loosen screw B.

With the pick-up arm lowered, move the counterbalancing weight C in either of the arrow directions until the pick-up is balanced.

Tighten the screw B and set the stylus pressure at 1.2 g with MMC3.

Aperture for Photo Control



Adjust the aperture with testing record 3621001 in cutting 5.

Take the pick-up arm across to cutting 5 (stationary turntable) and lower it.

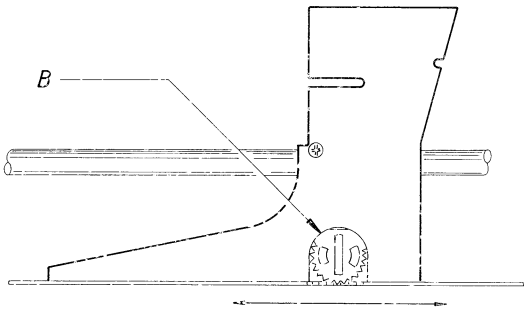
Make sure that the aperture housing is not exposed to any stray light such as a bench lamp.

Make the adjustment with the screw B in such a way that the first servo mechanism regulation after set-down will take place after 2 ±1 rotations of the turntable and then after each rotation.

To test the aperture regulation only, check that it regulates within 1/2 to 6 revolutions.

It is **possible** to adjust without disassembly, by only removing the black cover which houses the pick-up brush. This adjustment is to be made as above, the only difference being that the turntable must be braked to stop with the hand.

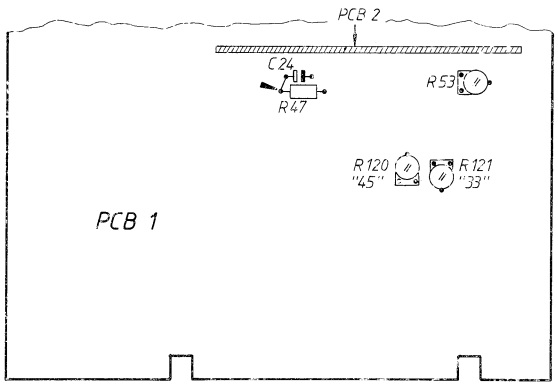
Set-down



Adjust the positioner with the screw B in one of the directions of the arrow until the arm is lowered on to a 30 cm record at a distance between 146.3 mm and 148.25 mm from the centrepoint of the record.

Speed

33 r.p.m./min should be adjusted first. Adjust with 1R121.
Adjust 45 r.p.m./min. with 1R120.



The speed may be checked in two ways:

1. With a stroboscope disc and an ordinary lamp connected to the main. This check will result in an inaccuracy of approx. 2% since the 50 Hz mains frequency deviates ±1 Hz.

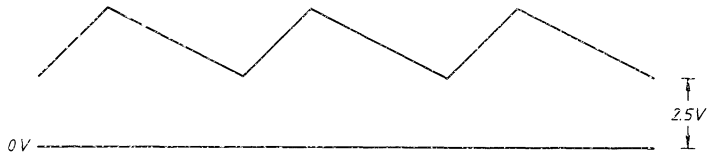
2. With a stroboscope disc and a stroboscope lamp. This check will result in an accuracy corresonding to the tolerance of the stroboscope lamp with is normally much better than that of the mains frequency.

Sensitivity Detector Arm

False light should not be admitted to the detector arm (e.g. from a bench lamp).

Move the detector arm across the ribs of the platter.

Connect an oscilloscope to the common point of 1R47 and 1C24.

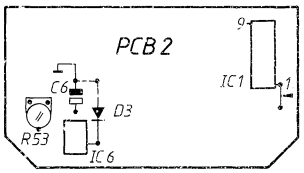


Adjust with 1R53 until a reading of 2.5 V is obtained up to the bottom of the sawtooth curve.

Clock Generator

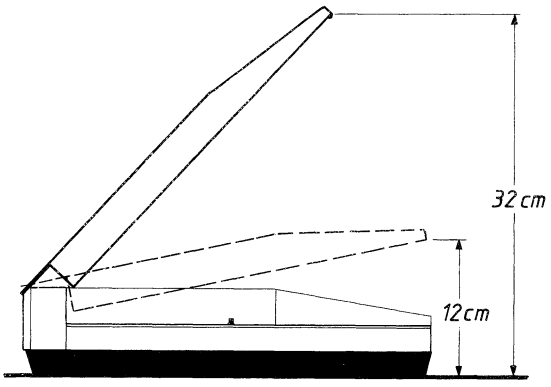
Short-circuit the anode of 2D3 briefly to the chassis.

Connect a frequency counter or a Bang & Olufsen Voltmeter RV11 and the Frequency Probe PF5 to pins 1/9 on 2IC1.



Adjust with 2R13 to 320 Hz ±5 Hz (3.12 msec.) on pins 1/9 on 2IC1.

Dust cover Lid Spring



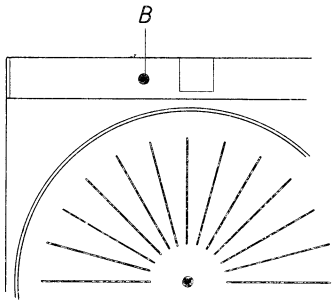
Adjust the dust cover lid with the screw B.

1. Lifting adjustment:

   Lift the dust cover lid gently and release it when the lower front edge of the lid has been raised approx. 32 cm above the record player base. The lid will then automatically seek its top position.

2. Lowering adjustment:

   Lower the dust cover lid gently and release it when the lower front end of the lid is approx. 12 cm from the base. The lid will then automatically seek its closed position.



Adjust the dust cover lid with the screw B.

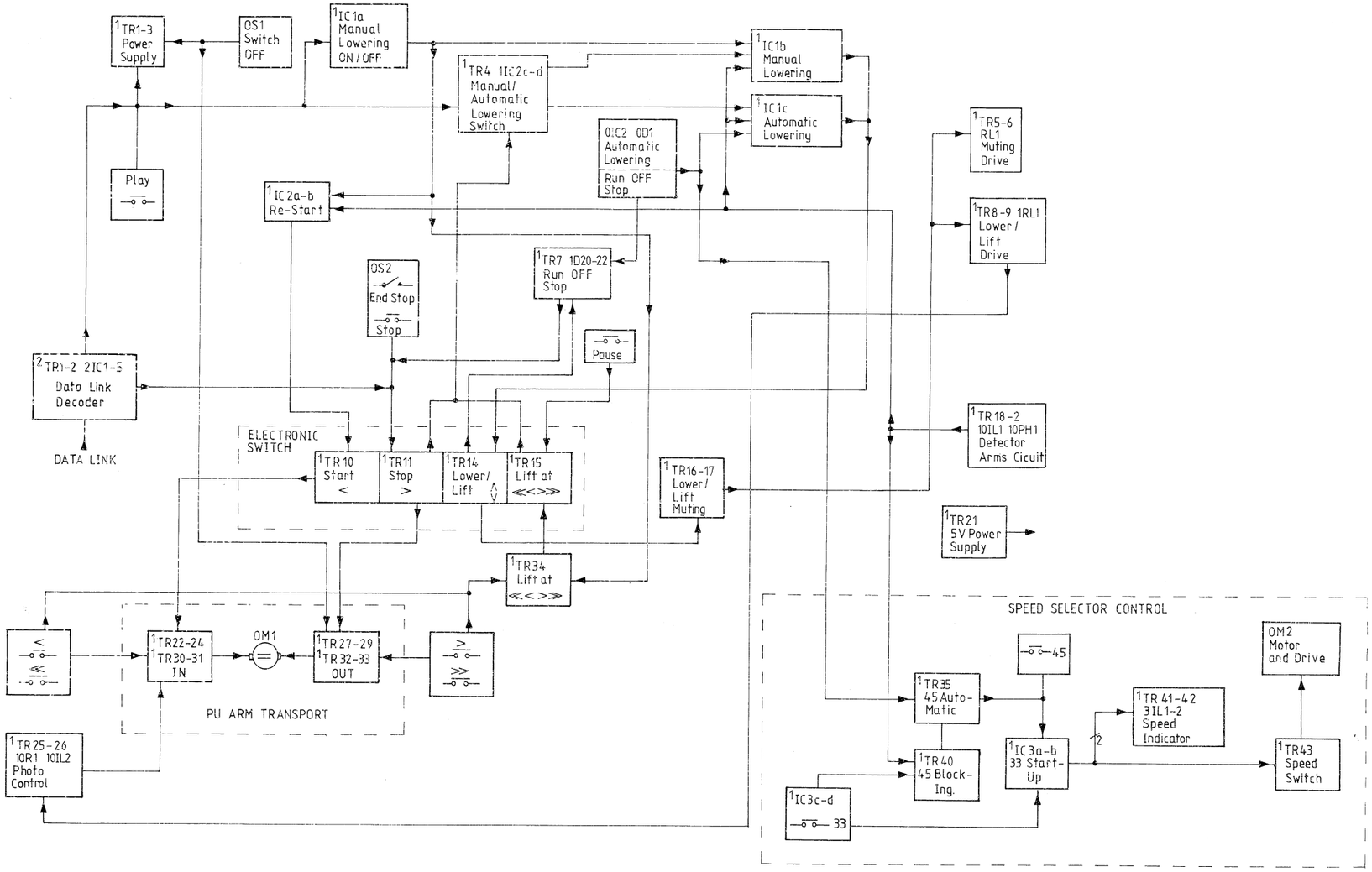
Lubrication Chart

The need for relubrication is negligible.

In the case of overhauls and when replacing mechanical parts the directions below should be followed.

Point of lubrication	Lubricant	Remarks
Turntable bearing	3984008, M4 oil	Apply to shaft point + streak throughout length of shaft
Spindle pos. No. 0021	3984216, Rocol MTS 1000. Dilute to oily consistency (1:1) with 3984221, ESSO NUTO H44/HP32	Apply to spindle at least in 5 points
Spindle bearing	3984030, Barrierta L55/2	
Lift-lower	Castrol oilit 3984211	Apply to needle on pos. No. 0510
Damping of alu. lid 3984005	Kilopoise 3984005	Apply in one streak at each side

BLOCK DIAGRAM DESCRIPTION



The following is a brief description of the block diagram.

When PLAY is pressed, the power supply will be triggered and all the circuits in the record player will come on voltage and simultaneously the flip-flop 1IC2 c-d will go into a mode which allows automatic lowering of the PU arm (d = high). On starting up the starter section of the electronic switch (1TR10) will automatically become activated, and it will impart information to the PU arm transport circuit with the effect that the carrier forward transport will commence. Also, the flip-flop 1IC3 will go into the mode for 33 rpm (b = high).

If there is a 30 cm record on the platter, 0IC2 and 1TR20 will via 1IC1 impart information to the lower/lift section of the electronic switch (1TR14) with the effect that the latter is being activated and the forward transport of the carrier will stop, the PU arm will be lowered and the muting relay become activated. When the PU arm has been lowered a photo-control circuit will impart information to the PU arm transport circuit about regulation of the carrier position. If ≪, <, > og ≫ are being activated during the playing of a record, 1TR15 in the electronic switch will become active via 1TR34, the muting relay will block signal passage, the PU arm will be lifted and the PU arm transport circuit will receive direct information from the activated button. The manual/ automatic lowering switch will also receive information from 1TR15 on activation of ≪, <, > or ≫ and the flip-flop 1IC2c-d will switch with the effect that automatic lowering of the PU arm cannot occur during manual carrier transport (d = low) speed selector control will also be blocked so that automatic switching to 45 rpm cannot occur. On activation of PLAY subsequent to manual carrier transport or pause, information from 1IC1a-b will be imparted to the lower/lift section in the electronic switch, and the PU arm will be lowered.

When the PU is in the run-off groove of a record 0IC2 will transmit pulses to the run-off stop circuit (1TR7) where a DC voltage will gain in value until the stop section (1TR11) in the electronic switch will be triggered, the PU arm will be lifted, the muting relay will block signal passage and 1TR1 will impart information to the PU arm transport circuit, and the carrier return transport will commence. When the carrier reaches its stop position the switch off (0S1) is being activated so that the power supply is cut-off, and simultaneously 0S1 will give information to the PU arm transport circuit with the effect that the latter will stop immediately on activation of 0S1.

If PLAY is activated with no record on the platter, the detector arm circuit will transmit a low level to 1IC1b-c with the consequence that neither automatic nor manual lowering of the PU arm can occur with no record on the platter, and the forward transport of the carrier will continue across the platter. Prior to the 17 cm set-down point 0IC2 will transmit a high level 45 cm automatic (1TR35) and the speed selector circuit will switch to 45 rpm. Immediately before the carrier reaches the platter centre, the end stop (0S2) is being activated. This will in turn activate the stop section of the electronic switch.

The re-start circuit (1IC2a-b) will ensure a normal forward transport of carrier reactivation in cases when manual set-down is attempted without a record on the platter.

Via the data link decoder the functions play and stop can be achieved via a Beomaster equipped with the data link facility.

TECHNICAL SPECIFICATIONS

Wow and flutter DIN	<±0.07%
Wow and flutter WRMS	<±0.025%
Rumble DIN weighted	>70 dB
Rumble DIN unweighted	>45 dB
Speeds	33-45 rpm
Speed diviation	<0.2%
Tangential tracking	<0.04°
Power consumption	15W
Dimensions W x H x D	49 x 9 x 37.5 cm
Weight	9 kg

Power Supply and Frequency

Type 5641	100V 50 Hz
Type 5643/53	120V 60 Hz
Type 5645/51	220V 50 Hz
Type 5646/52	240V 50 Hz
Type 5647/55 (AUS)	240V 50 Hz

MMC3 Cartridge

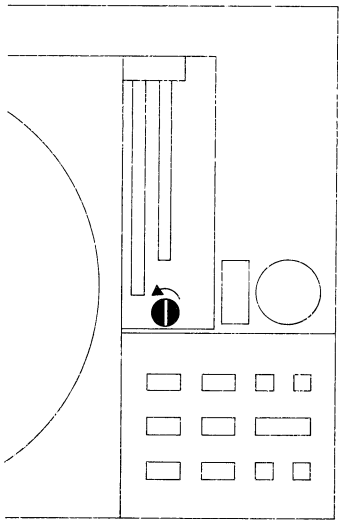
Recommended tracking force	12 mN/1.2 g
Frequency range	20-20,000 Hz ±2 dB
Channel separation 1000 Hz	>25 dB
Channel separation 50-15,000 Hz	>20 dB
Channel difference	<1.5 dB
Stylus	Elliptical nude diamond
Cantilever	Tapered aluminium tube
Effective tip mass	0.35 mg
Compliance	25 µm/mN
Sensitivity mV/cm/s RMS	>0.6 mV
Output 5 cm lateral RMS	>2.12 mV
Cartridge weight	1.6 g
Load impedance	≧47 kΩ
Load capacity	≦400 pF

Subject to change without notice

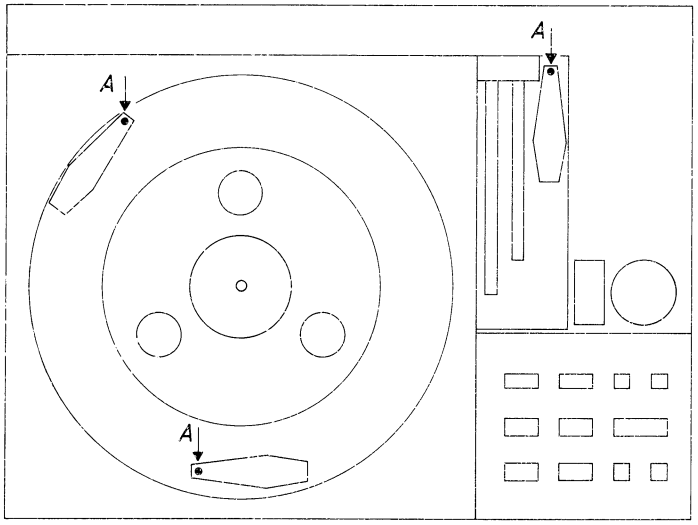
Bang&Olufsen

DISMANTLING
Servicing Position

Loosen the black cover plate below the pick-up arm assembly by turning the black screw 1/4 turn in the direction of the arrow.

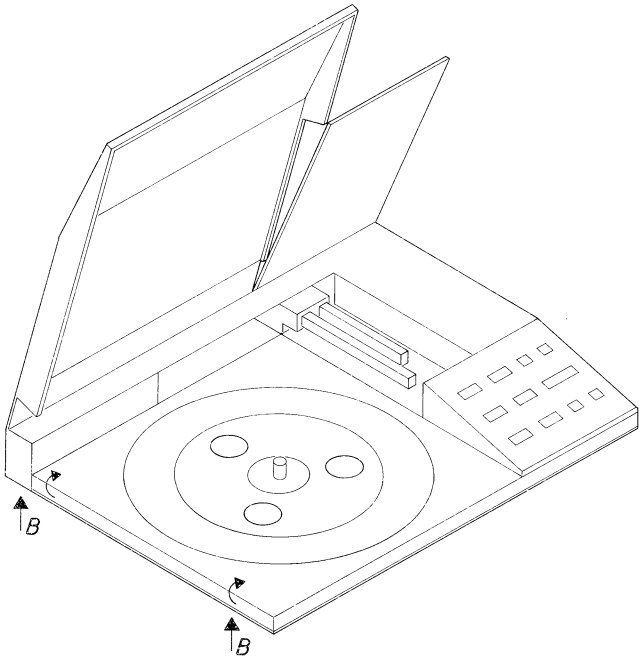


Remove the turntable.



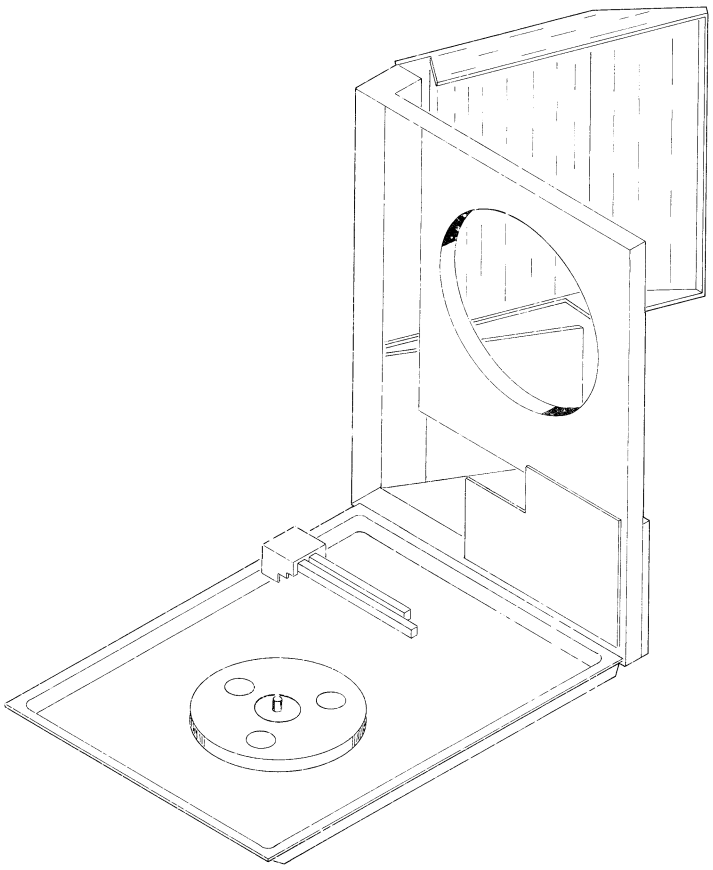
Lift the hooks for the suspension of the train drive/chassis off the suspension springs in the points A.

Remove the screws B.



Push, with due care, the train drive chassis to the right.

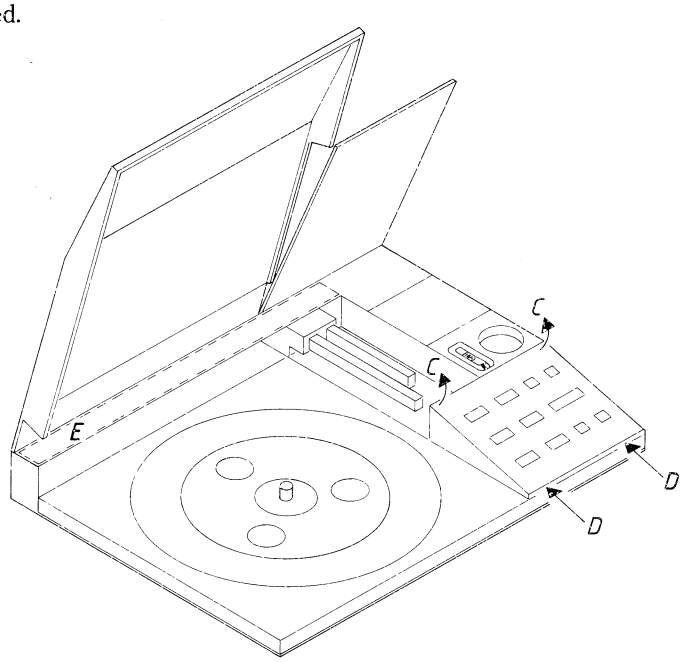
By lifting carefully at the left side of the top part it can now be tilted into the servicing position.



When assembling, make sure the back part (pos. 003) catches the rear edge of the bottom plate completely.

Control Panel

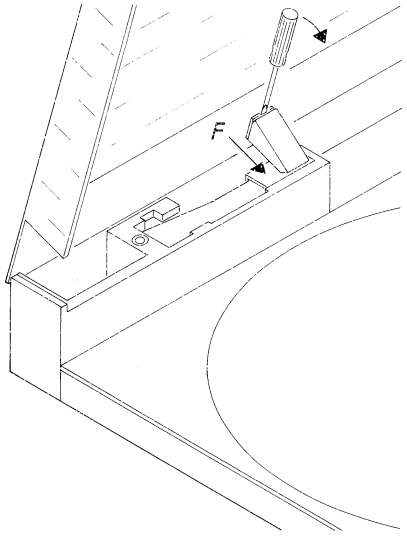
By lifting the rear edge of the control panel/cover (C) the retainer pins may be released.



After the retainer pins at the top edge of the control panel/cover have been loosened, pull the control panel cover in the direction of the arrows C, and then push in the direction of the arrows D.

Dust Cover Spring

Remove cover E.

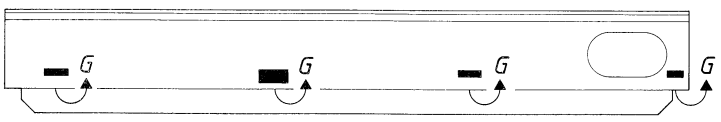


Press the dust cover spring down at the point F while the dust cover remains in its open position.

Insert a screwdriver between the dust cover and the cover hinge.

Lever the screwdriver with care in the direction of the arrow until the cover hinge is released.

Dust Cover

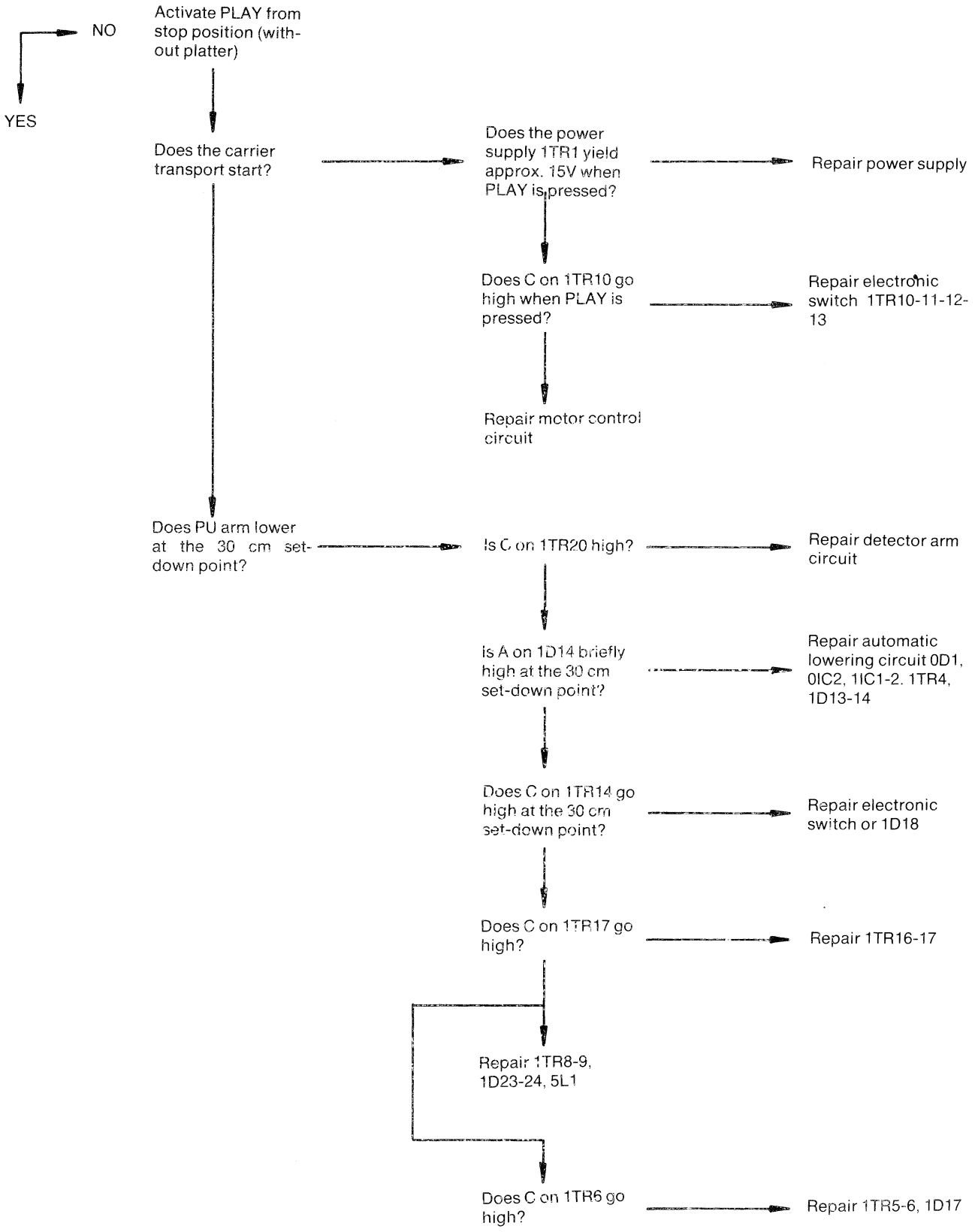


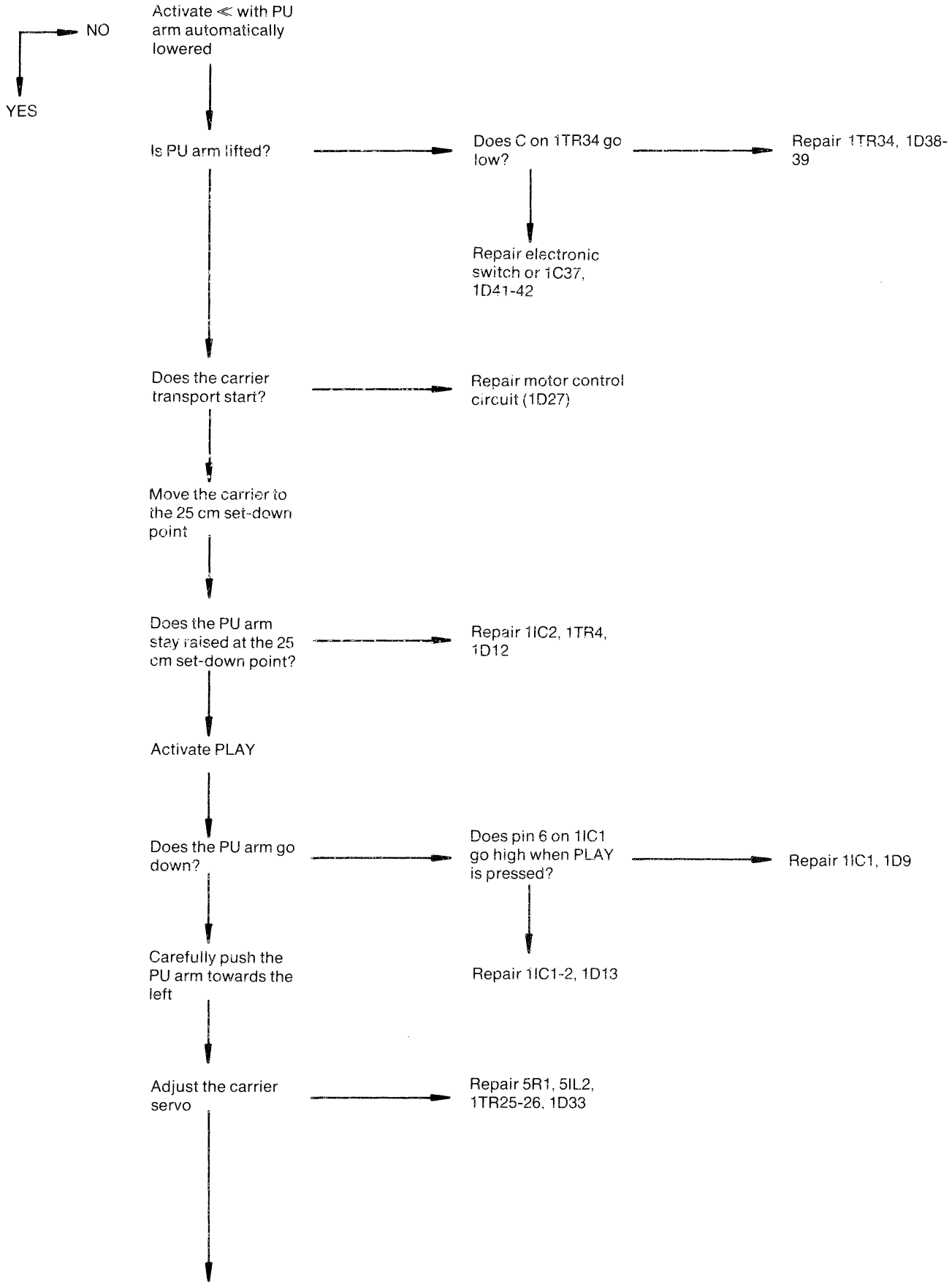
Pull carefully at the rear part in the direction of the arrows G until the rear part and the cover are released.

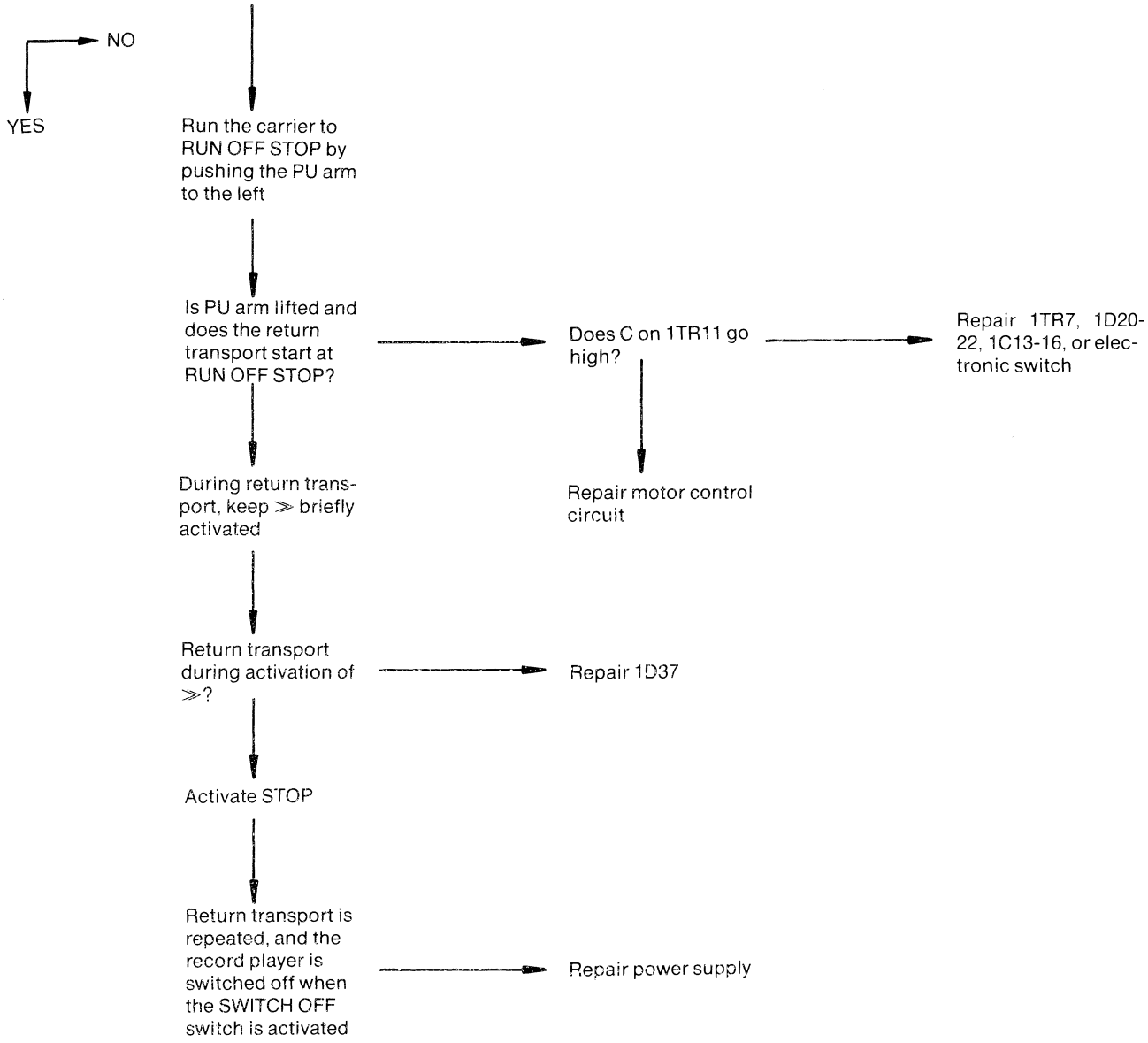
FAULTFINDING

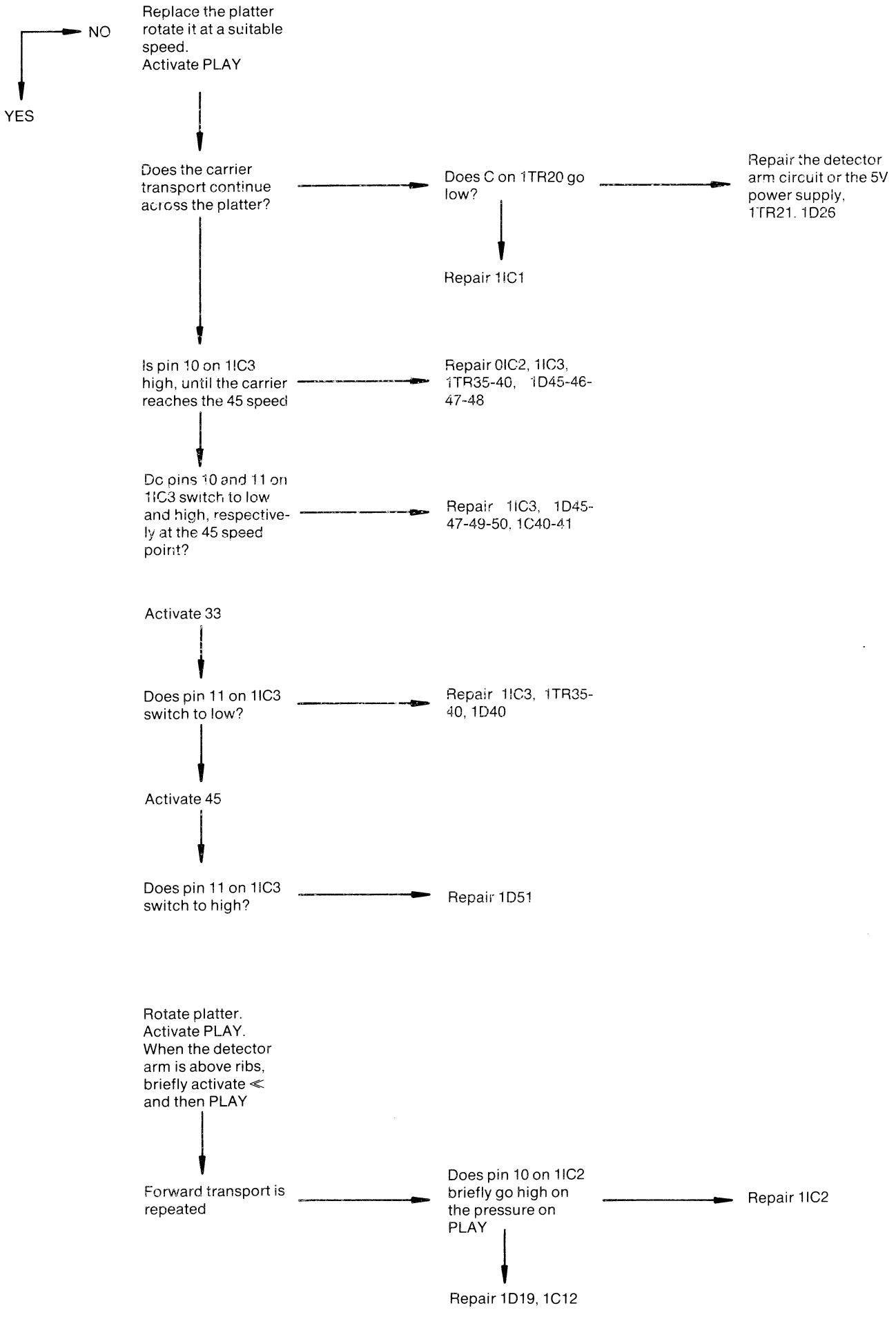
During a faultfinding job in the control circuit the below diagram would be useful.

Put the record player in the servicing position with the platter stationary. When the platter should rotate, then rotate it by hand at a suitable speed.

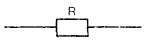
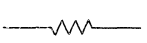
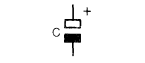
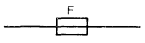
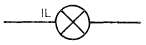
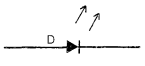
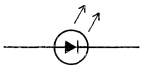
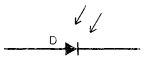
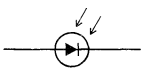
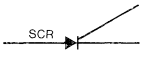
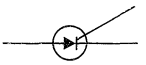
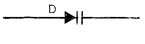
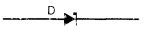
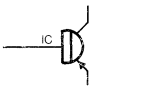
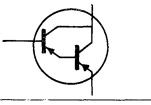
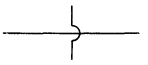
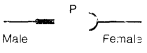
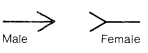

Activate PLAY from stop position (without platter)
NO
YES
Does the carrier transport start?
Does the power supply 1TR1 yield approx. 15V when PLAY is pressed?
Repair power supply
Does C on 1TR10 go high when PLAY is pressed?
Repair electronic switch 1TR10-11-12-13
Repair motor control circuit
Does PU arm lower at the 30 cm set-down point?
Is C on 1TR20 high?
Repair detector arm circuit
Is A on 1D14 briefly high at the 30 cm set-down point?
Repair automatic lowering circuit 0D1, 0IC2, 1IC1-2. 1TR4, 1D13-14
Does C on 1TR14 go high at the 30 cm set-down point?
Repair electronic switch or 1D18
Does C on 1TR17 go high?
Repair 1TR16-17
Repair 1TR8-9, 1D23-24, 5L1
Does C on 1TR6 go high?
Repair 1TR5-6, 1D17


NO
YES
Activate ≪ with PU arm automatically lowered
Is PU arm lifted?
Does C on 1TR34 go low?
Repair 1TR34, 1D38-39
Repair electronic switch or 1C37, 1D41-42
Does the carrier transport start?
Repair motor control circuit (1D27)
Move the carrier to the 25 cm set-down point
Does the PU arm stay raised at the 25 cm set-down point?
Repair 1IC2, 1TR4, 1D12
Activate PLAY
Does the PU arm go down?
Does pin 6 on 1IC1 go high when PLAY is pressed?
Repair 1IC1, 1D9
Repair 1IC1-2, 1D13
Carefully push the PU arm towards the left
Adjust the carrier servo
Repair 5R1, 5IL2, 1TR25-26, 1D33


NO
YES
Run the carrier to RUN OFF STOP by pushing the PU arm to the left
Is PU arm lifted and does the return transport start at RUN OFF STOP?
Does C on 1TR11 go high?
Repair 1TR7, 1D20-22, 1C13-16, or electronic switch
Repair motor control circuit
During return transport, keep ≫ briefly activated
Return transport during activation of ≫?
Repair 1D37
Activate STOP
Return transport is repeated, and the record player is switched off when the SWITCH OFF switch is activated
Repair power supply


NO
YES
Replace the platter rotate it at a suitable speed. Activate PLAY
Does the carrier transport continue across the platter?
Does C on 1TR20 go low?
Repair the detector arm circuit or the 5V power supply, 1TR21, 1D26
Repair 1IC1
Is pin 10 on 1IC3 high, until the carrier reaches the 45 speed
Repair 0IC2, 1IC3, 1TR35-40, 1D45-46-47-48
Do pins 10 and 11 on 1IC3 switch to low and high, respectively at the 45 speed point?
Repair 1IC3, 1D45-47-49-50, 1C40-41
Activate 33
Does pin 11 on 1IC3 switch to low?
Repair 1IC3, 1TR35-40, 1D40
Activate 45
Does pin 11 on 1IC3 switch to high?
Repair 1D51
Rotate platter. Activate PLAY. When the detector arm is above ribs, briefly activate ≪ and then PLAY
Forward transport is repeated
Does pin 10 on 1IC2 briefly go high on the pressure on PLAY
Repair 1IC2
Repair 1D19, 1C12

Symbols

	Bang & Olufsen	US
Resistor		
Electrolytic Capacitor		
Fuse		
Lamp		
Light Emitting Diode (LED)		
Photo Diode (Photosensitive type)		
Silicon Controlled Rectifier (SCR)		
Varactor		
Zener Diode		
Darlington Transistor (PNP)		
Wires Crossing		
Wire Connecting		
Ground, 0-point DC		

Insulation Test

Each record player **must** be insulation tested after having been dismantled. The test is to be made when the record player has been reassembled completely and is ready for delivery to the customer.

Make the insulation test as follows:

Short-circuited the two pins of the mains plug and connect one of the terminals to the insulation tester.

The other terminal from the insulation tester is connected to the chassis plate near the 7 pol. DIN-socket.

NOTE!
To avoid ruining the record player it is essential that both insulation tester terminals are in really good mechanical contact.

Now slowly turn the voltage control of the insulation tester until a voltage of 1.5-2 kV is obtained. Hold it there for 1 second, then slowly turn the voltage down again.

At no point during the testing procedure any flash-overs are permissible.